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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,041	08/03/2001	Larry H. Gass	ITL.0506US (P10475)	7270
21906 7590 06/19/2007 TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			EXAMINER NGUYEN, MINH DIEU T	
			ART UNIT 2137	PAPER NUMBER
			MAIL DATE 06/19/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/922,041

Applicant(s)

GASS ET AL.

Examiner

Minh Dieu Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,27,29 and 32-42 is/are pending in the application.
- 4a) Of the above claim(s) 2,8-26,28,30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,27,29 and 32-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. In view of the appeal brief filed on 2/9/2007, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:



2. Claims 1, 3-7, 27, 29, and 32-42 are pending.

Response to Arguments

3. Applicant's arguments filed February 9, 2007 have been fully considered but they are not persuasive. Applicant argues that Sudia does not teach retrieving a second public key if the first public key is not valid. The examiner respectfully disagrees, Sudia discloses multiple instruction keys of the trusted third parties in the device firmware

besides manufacturer's signature key, if the manufacturer's key is compromised, lost or destroyed (i.e. key is not valid), then the trusted third party's instruction key can be used to replace, so the replacement key is viewed as the second key or backup key.

Claim Objections

4. Claims 1, 27 and 32 are objected to because of the following informalities:

The phrase "upgrading a portion of the firmware program by the firmware program" should be "upgrading a portion of the firmware program by the firmware **upgrade** program".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 34, 39 and 41-42 are rejected under 35 U.S.C. 112, first paragraph.

a) As to claim 34, the specification (paragraph 0026), while being enabling for lock bits that preclude upgrade of the flash memory (40) and prevent reading of its contents, such as the firmware (200), does not reasonably provide enablement for locking the first portion to prevent reading the first portion. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly

connected, to use the invention commensurate in scope with this claim (i.e. locking the first portion to prevent reading said first portion).

b) As to claim 39, the specification (paragraphs 0033, 0040), while being enabling for locking the flash memory (40) such that the flash memory is both not upgradable (write lock) and not viewable (read lock), does not reasonably provide enablement for locking the first portion against being written. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with this claim (i.e. locking the first portion being written). Further, the first portion is not upgradable as claimed, why there is a need for locking the first portion against being written.

c) As to claims 41-42, the specification (paragraph 0023), while being enabling for including public keys in upgradable portion, does not reasonably provide enablement for including public keys in the first portion (i.e. non-upgradable portion). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with this claim (i.e. including public key(s) in said first portion).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 33-35 and 39-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Hind et al. (6,976,163).

a) As to claims 33 and 40, Hind discloses a method comprising providing a first portion of a firmware code which is not upgradable (i.e. permanent and non-modifiable, Hind: col. 8, lines 41-44); providing a second portion of a firmware code that is upgradable (i.e. semi-permanent and modifiable, Hind: col. 8, lines 37-41); and providing information for authenticating (Hind: col. 3, lines 47-49; col. 8, lines 57-60) an upgrade of the second portion in the first portion.

b) As to claim 34, as best understood, Hind discloses locking the first portion to prevent reading said first portion (Hind: col. 7, lines 35-53).

c) As to claims 35 and 38, Hind discloses providing a signature authentication in said first portion and providing instructions in said first portion to confirm the validity of a firmware upgrade file (Hind: col. 8, lines 57-60; col. 10, lines 54-67).

d) As to claim 39, as best understood, Hind discloses determining whether an upgrade request is authentic and if said upgrade request is not authentic, locking the first portion against being written (Hind: col. 12, lines 54-55).

e) As to claim 41, as best understood, Hind discloses a public key is included in said first portion (Hind: col. 12, lines 22-32).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 3, 5-7, 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angelo et al. (5,748,940) in view of Falik et al. (2002/0166061) and further in view of Sudia (2001/0050990).

a) As to claims 1 and 27, Angelo discloses a secure updating of non-volatile memory comprising identifying a firmware upgrade request by a firmware program (i.e. a flash bit set to indicate a flash update will occur, col. 3, lines 3-6); retrieving a file signed with a private key (Fig. 3, element 310); validating a file with a public key (Fig. 3, element 312; col. 3, lines 39-52); upgrading a portion of the firmware program by the firmware program (Fig. 3, element 316).

Angelo does not disclose locking a device storing the firmware program such that a second portion of the firmware program is not readable.

Falik discloses an apparatus and method for protecting the contents of a shared memory in a memory device comprising a step of locking a device storing the firmware program such that a second portion of the firmware program is not readable (page 2, paragraph [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of locking device storing the firmware program such that a

second portion of the firmware program is not readable in the system of Angelo as Falik teaches so as to prevent access to the firmware by unauthorized users.

Angelo and Falik do not disclose the steps of validating the public key and retrieving a second public key from the firmware program if the public key is not valid.

Sudia discloses a cryptographic system and method for upgrading device firmware (Abstract) of a trusted device comprising validating the public key and retrieving a second public key from the firmware program if the public key is not valid (page 22, paragraph [0251]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of validating the public key and retrieving a second public key from the firmware program if the public key is not valid in the system of Angelo and Falik as Sudia teaches so as to efficiently perform firmware upgrade request.

b) As to claim 3, the combination of Angelo, Falik and Sudia discloses identifying a firmware upgrade request by a firmware program further comprising reading a flag, wherein the flag is located in a non-volatile medium (Angelo: Fig. 1, element 120; i.e. flash bit) and determining that the flag is set (Angelo: col. 2, lines 6-8).

c) As to claims 5 and 29, the combination of Angelo, Falik and Sudia discloses locking flags is utilized to implement software protection for each flash memory device blocks (Falik: page 1, paragraph [0014]; i.e. determining that the file is not authentic and locking the device).

d) As to claim 6, the combination of Angelo, Falik and Sudia discloses locking the device after upgrading a portion of the firmware program by the firmware program (Falik: page 9, paragraph [0111]; page 11, paragraph [0122]).

e) As to claim 7, the combination of Angelo, Falik and Sudia discloses the second portion of the firmware program is a public key (Angelo: col. 3, lines 39-52).

11. Claims 4 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angelo et al. (5,748,940) in view of Falik et al. (2002/0166061) in view of Sudia (2001/0050990) and further in view of Toft (2002/0138592).

a) As to claim 32, Angelo discloses a secure updating of non-volatile memory comprising identifying a firmware upgrade request by a firmware program (i.e. a flash bit set to indicate a flash update will occur, col. 3, lines 3-6); retrieving a file signed with a private key (Fig. 3, element 310); validating a file with a public key (Fig. 3, element 312; col. 3, lines 39-52); upgrading a portion of the firmware program by the firmware program (Fig. 3, element 316).

Angelo discloses identifying a firmware upgrade request by a firmware program further comprising reading a flag, wherein the flag is located in a non-volatile medium (Fig. 1, element 120; i.e. flash bit) and determining that the flag is set (col. 2, lines 6-8).

Angelo does not disclose locking a device storing the firmware program such that a second portion of the firmware program is not readable.

Falik discloses an apparatus and method for protecting the contents of a shared memory in a memory device comprising a step of locking a device storing the firmware

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program such that a second portion of the firmware program is not readable (page 2, paragraph [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of locking device storing the firmware program such that a second portion of the firmware program is not readable in the system of Angelo as Falik teaches so as to prevent access to the firmware by unauthorized users.

Angelo and Falik do not disclose the steps of validating the public key and retrieving a second public key from the firmware program if the public key is not valid.

Sudia discloses a cryptographic system and method for upgrading device firmware (Abstract) of a trusted device comprising validating the public key and retrieving a second public key from the firmware program if the public key is not valid (page 22, paragraph [0251]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of validating the public key and retrieving a second public key from the firmware program if the public key is not valid in the system of Angelo and Falik as Sudia teaches so as to efficiently perform firmware upgrade request.

Angelo, Falik and Sudia do not explicitly disclose the steps of deleting the file and clearing the flag.

Toft discloses clearing the update flag before rebooting the system (paragraph [0022]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of clearing the update flag in the system of Angelo, Falik and Sudia as Toft teaches so as to properly control the update process.

Angelo, Falik, Sudia and Toft do not explicitly disclose deleting the file.

The examiner takes official notice that deleting the upgrade file after it is being used is a common practice to save system memory.

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of deleting the file in the system of Angelo, Falik, Sudia and Toft so as to save system memory.

b) As to claim 4, please see addressed above claim 32.

12. Claims 36-37 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hind et al. (6,976,163) in view of Sudia (2001/0050990).

Hind discloses a public is included (Hind: col. 12, lines 22-32), however Hind is silent on the capability of having two public keys (claims 36 and 42) and two identical public keys (claim 37).

Sudia is relied on for the teaching of having two public keys and they are identical (Sudia: paragraphs [0251]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of having two public keys and two identical public keys in the system of Hind as Sudia teaches so as to provide a back up key in the case the other key is lost or stolen (i.e. not valid).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Dieu Nguyen whose telephone number is 571-272-3873.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on 571-272-3865. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mdn
6/13/07


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SUPERVISORY PATENT EXAMINER